

IN THE CLAIMS

1-8. (canceled)

9. (currently amended) A system for medical imaging comprising:

a first coil configured in a diagonal arrangement; ~~and~~

a second coil configured in a diagonal arrangement, the diagonal arrangement of the first coil in a direction different than the diagonal arrangement of the second coil; and

at least third and fourth coils configured in a diagonal arrangement, the diagonal arrangement of the third coil in a direction different than the diagonal arrangement of the fourth coil, and wherein the coils are arranged in one of a (i) superior-inferior direction, (ii) left-right direction and (iii) anterior-posterior direction, and configured for operation in at least one of conventional and sensitivity encoding (SENSE) imaging, and wherein each of the first and second coils include a middle section with the middle section of each of the first and second coils overlapping.

10. (original) A system in accordance with claim 9 wherein at least one of the first and second coils comprise at least one of a loop coil, butterfly coil and a saddle coil.

11. (original) A system in accordance with claim 9 wherein the first and second coils are configured to overlap at a middle section.

12. (original) A system in accordance with claim 11 wherein each of the first and second coils comprise an upper and lower section, and wherein inner edges of the upper and lower sections are separated by a gap of about one-half centimeter to about two and one-half centimeters along a main magnetic field direction.

13. (canceled)

14. (currently amended) A system in accordance with claim 9 ~~further comprising at least third and fourth coils configured in a diagonal arrangement, the diagonal arrangement of~~

~~the third coil in a direction different than the diagonal arrangement of the fourth coil, wherein~~  
the are coils configured to provide quadrature operation.

15. (original) A system in accordance with claim 14 wherein the coils are configured to operate in connection with separate channels of a medical imaging system.

16. (original) A system in accordance with claim 14 wherein the coils are configured for combining to operate in connection with a medical imaging system.

17. (currently amended) A system in accordance with claim 16 wherein the medical imaging system comprises a magnetic resonance imaging (MRI) system and wherein the coils are configured to ~~operation~~ operate in connection with two channels of the MRI system.

18. (currently amended) ~~A system in accordance with claim 13~~ A system for medical imaging comprising:

a first coil configured in a diagonal arrangement;

a second coil configured in a diagonal arrangement, the diagonal arrangement of the first coil in a direction different than the diagonal arrangement of the second coil; and

at least third and fourth coils configured in a diagonal arrangement, the diagonal arrangement of the third coil in a direction different than the diagonal arrangement of the fourth coil, wherein the coils are arranged in one of a (i) superior-inferior direction, (ii) left-right direction and (iii) anterior-posterior direction, and wherein anterior saddle coils are configured wider than anterior loop coils and posterior loop coils are configured wider than posterior saddle coils.

19. (cancelled)

20. (currently amended) ~~A system in accordance with claim 18~~ A system for medical imaging comprising:

a first coil configured in a diagonal arrangement;

a second coil configured in a diagonal arrangement, the diagonal arrangement of the first coil in a direction different than the diagonal arrangement of the second coil; and

at least third and fourth coils configured in a diagonal arrangement, the diagonal arrangement of the third coil in a direction different than the diagonal arrangement of the fourth coil, wherein the coils are arranged in one of a (i) superior-inferior direction, (ii) left-right direction and (iii) anterior-posterior direction, and wherein anterior saddle coils are configured wider than anterior loop coils and posterior loop coils are configured wider than posterior saddle coils and wherein the anterior saddle coils overlap the posterior loop coils on left and right sides.

21. (currently amended) A system in accordance with claim 13 ~~9~~ wherein at least two of the coils forming at least one of an anterior and posterior section are flexible.

22. (currently amended) A system in accordance with claim 9 further comprising at ~~least third and fourth coils configured in a diagonal arrangement, the diagonal arrangement of the third coil in a direction different than the diagonal arrangement of the fourth coil, and~~ fifth and sixth coils configured in a diagonal arrangement, the diagonal arrangement of the fifth coil in a direction different than the diagonal arrangement of the sixth coil, wherein the coils are configured as quadrature pairs.

23. (original) A system in accordance with claim 22 wherein the quadrature pairs are arranged in one of a (i) superior-inferior direction, (ii) left-right direction and (iii) anterior-posterior direction.

24. (original) A system in accordance with claim 14 further comprising at least one combiner for quadrature combining at least two of the coils.

25. (canceled)

26. (new) A system in accordance with claim 18 wherein at least one of the first and second coils comprise at least one of a loop coil, butterfly coil and a saddle coil.

27. (new) A system in accordance with claim 18 wherein the first and second coils are configured to overlap at a middle section.

28. (new) A system in accordance with claim 27 wherein each of the first and second coils comprise an upper and lower section, and wherein inner edges of the upper and lower sections are separated by a gap of about one-half centimeter to about two and one-half centimeters along a main magnetic field direction.

29. (new) A system in accordance with claim 18 wherein the coils are configured to provide quadrature operation.

30. (new) A system in accordance with claim 20 wherein at least one of the first and second coils comprise at least one of a loop coil, butterfly coil and a saddle coil.

31. (new) A system in accordance with claim 20 wherein the first and second coils are configured to overlap at a middle section.

32. (new) A system in accordance with claim 31 wherein each of the first and second coils comprise an upper and lower section, and wherein inner edges of the upper and lower sections are separated by a gap of about one-half centimeter to about two and one-half centimeters along a main magnetic field direction.

33. (new) A system in accordance with claim 20 wherein the coils are configured to provide quadrature operation.